## CLAIMS

What is claimed is:

1. A bearing cup adapted to prevent rotation of a bearing race held therein relative to an external structure supporting the bearing while allowing axial movement of the bearing, the bearing cup comprising:

a circumferential ring adapted to support an outer race of a bearing;

at least one tang extending axially outward from a first edge of the ring; and

wherein the tang is adapted to engage a portion of the external structure to prevent the outer race of the bearing from rotating while allowing the bearing to move in an axial direction.

2. The bearing cup of claim 1, further comprising a shoulder extending radially in a first direction from an inner surface of the circumferential ring;

3. The bearing cup of claim 1, further comprising at least one slot and at least one tooth formed in the second edge adapted to couple with a second bearing cup having a matching slot and tooth such that the bearing cup prevents rotation of the second bearing cup.

4. The bearing cup of claim 1, further comprising a chamfered edge formed on the first and/or second side.

5. The bearing cup of claim 1, wherein at least a portion of the surfaces of the bearing cup are covered in a lubricant.

6. The bearing cup of claim 1, wherein the at least one slot is sized such that the slot is larger than the at least one tooth.

7. The bearing cup of claim 1, wherein the at least one slot is formed adjacent to the at least one tooth.

8. A bearing assembly for use in an apparatus comprising:

a bearing having an inner race and an outer race; and

a bearing cup disposed around the bearing and secured to the outer race, the bearing cup having at least one tang extending out from the bearing cup, the tang adapted to interface with a portion of the apparatus to prevent the bearing cup from rotating while allowing the bearing cup and thus the bearing to move in an axial direction.

9. The bearing assembly of claim 8, further comprising a second bearing having an inner and an outer race and a second bearing cup disposed around the second bearing and secured to the outer race thereof, the second bearing cup interlocking with the bearing cup such that the bearing cup prevents rotation of the second bearing cup while allowing axial movement thereof.

10. The bearing assembly of claim 8, wherein the bearing cups include at least one tooth and at least one slot, the tooth of the bearing cup disposed within the slot of the second bearing cup and the tooth of the second bearing cup disposed within the slot of the bearing cup.

11. The bearing assembly of claim 10, wherein the slots are larger than the teeth such that the teeth may partially rotate therein.

12. The bearing assembly of claim 11, wherein the bearing cups are generally ring shaped and include a shoulder extending radially inward from an inner surface thereof, the shoulders abutting the outer races to align the bearing cups on the bearings.

13. The bearing assembly of claim 12, further comprising a spring disposed between the bearings and the bearing cups to preload the bearings, the spring sandwiched between the shoulders of the bearing cups.

14. The bearing assembly of claim 13, wherein the bearing cups each include a plurality of teeth disposed within a plurality of slots to form an interlocking mesh, and wherein the spring is protected between the shoulders and the interlocking teeth of the bearing cups.

15. The bearing assembly of claim 11, further comprising a shim disposed between the inner races of the bearings to space the bearings apart from one another.

16. The bearing assembly of 8, wherein the bearing cup is secured to the outer race of the bearing by heating the bearing cup and chilling the bearing such that an interference fit is formed between the bearing cup and the outer race.

17. An apparatus comprising:

a housing defining a pocket;

a rotating shaft at least partially disposed within the housing and capable of moving in an axial direction;

a first bearing having an inner and an outer race, the first bearing supporting the rotating shaft within the inner race;

a first bearing cup disposed around the first bearing and secured to the outer race thereof, the first bearing cup including at least one tang extending axially from a first side of the bearing cup, at least one tooth extending axially from a second side of the bearing cup opposite the first side, and an at least one slot formed in the second side, the tang having a length less than a depth of the pocket;

a second bearing having an inner and an outer race, the second bearing adapted to support the rotating shaft;

a second bearing cup disposed around the second bearing and secured to the outer race thereof, the second bearing cup including at least one slot formed therein;

wherein the tooth of the first bearing cup is disposed within the slot of the second bearing cup; and

wherein the tang extends into the pocket of the housing thereby preventing the first and second bearing cups from rotating while allowing the first and second bearing cups to move with the shaft in an axial direction.

18. The apparatus of claim 17,wherein the second bearing cup includes at least one tooth extending axially therefrom, the tooth of the second bearing cup disposed within the slot of the first bearing cup.

19. The apparatus of claim 17, further comprising a spring disposed between the first and second bearings for preloading the bearings.

20. The apparatus of claim 19, wherein the first and second bearing cups each include a shoulder, the spring disposed between the shoulders of the first and second bearing cups.

21. The apparatus of claim 17, wherein the bearings are angular contact ball bearings.

22. The apparatus of claim 17, further comprising a damper seal at least partially disposed within the housing and at least partially defining the pocket of the housing.

23. The apparatus of claim 17, further comprising a shim disposed between the first and second bearings for spacing the bearings apart.

24. A method for preventing rotation of an outer race of a bearing assembly relative to a housing supporting the outer bearing race while still allowing axial movement of the bearing assembly, the method comprising:

providing a bearing mounted on a rotating shaft disposed within a housing;

providing a bearing cup adapted to support the outer race therein, the bearing cup having a tang extending axially therefrom;

preventing the outer race of the bearing from rotating by supporting the bearing cup within the housing such that the tang extends into a portion of the housing; and

allowing movement of the shaft in an axial direction by allowing the tang to move relative to the portion of the housing.

25. The method of claim 24, wherein the bearing cup is press fitted onto the outer race of the bearing.